JRC Scientific and Technical Reports

Annex

Data Acquisition and Signal Generator examples

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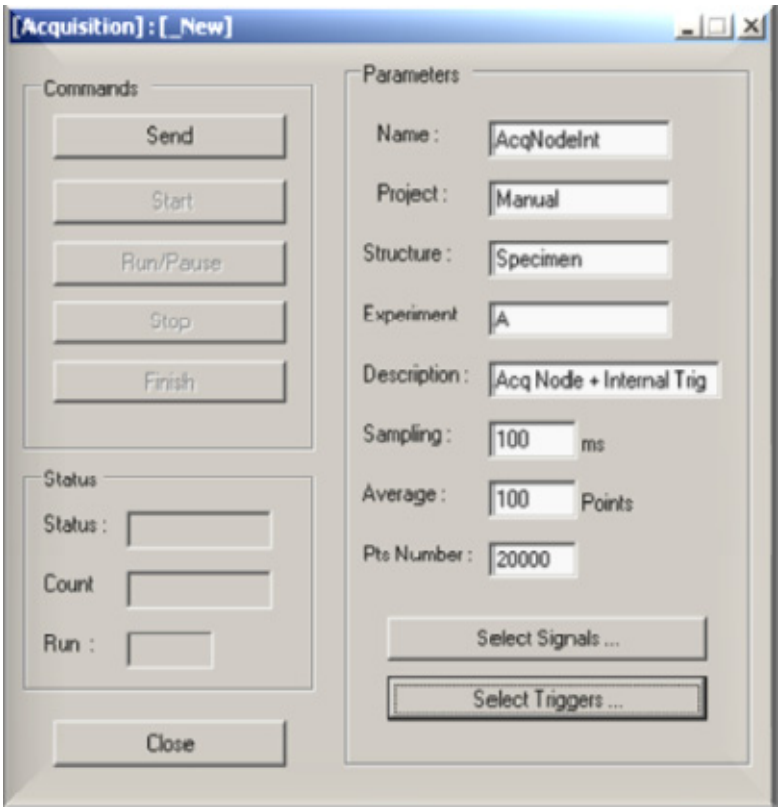

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	Acquisition Node		Master Controller	
	Internal Trigger	External Trigger	Internal Trigger	Int. Trigger + DLL
Name	AcqNodeInt	AcqNodeExt	MasterInt	MasterDLLInt
Project	Manual	Manual	Manual	Manual
Structure	Specimen	Specimen	Specimen	Specimen
Experiement	A	B	C	D
Description	Acq Node + Internal Trigger	Acq Node + External Trigger	Master + Internal Trigger	Master + DLL + Internal Trigger
Sampling [ms]	100	2	100	2
Average [points]	100	100	50	1
Pts Number	20 000	10 000	300 000	300 000
Signals	DEV_IN.CHANNEL_N	DEV_IN.CHANNEL_N	INTERNALALGOINPUTN INTERNALALGOOUTUTN	ALGORAV
Run Trigger Channel	TRIGGER_N.RunTrigger	DEV_IN.CHANNEL_65	TRIGGER_N.RunTrigger	DEV_OUT.CHANNEL_17
Run Trigger Type	Rising Level	Rising Edge	Rising Level	Rising Edge

Table 1 Summary

A. Acquisition through an acquisition node with an internal trigger

```
#Start of Acquisition Setup File : C:\Manual\Acquisition\A.Acq

#Name of the acquisition Object
Name=AcqNodeInt

#Message queue size
dwQueueSize=8000

#Memory size
dwMemorySize=200480

#Maximum block
dwBlockNumber=50000

#Acquisition Type
usAcquisitionType=1

#project name
szProjectName=Manual

#structure name
szStructureName=Specimen

#experiment name
szExperimentName=A

#acquisition name
szAcquisitionName=AcqNodeInt

#description
szDescription=Acq Node + Internal Trig

#sampling time
dwSamplingTime=100

#Average
dwAverage=100

#buffer size (number of acq)
dwBufferSize=20000

#signalnumber
dwSignalNumber=64

szSignal1=DEV_IN.CHANNEL_1
szSignal2=DEV_IN.CHANNEL_2
szSignal3=DEV_IN.CHANNEL_3
szSignal4=DEV_IN.CHANNEL_4
szSignal5=DEV_IN.CHANNEL_5
szSignal6=DEV_IN.CHANNEL_6
szSignal7=DEV_IN.CHANNEL_7
szSignal8=DEV_IN.CHANNEL_8
szSignal9=DEV_IN.CHANNEL_9
```

```
szSignal10=DEV_IN.CHANNEL_10
szSignal11=DEV_IN.CHANNEL_11
szSignal12=DEV_IN.CHANNEL_12
szSignal13=DEV_IN.CHANNEL_13
szSignal14=DEV_IN.CHANNEL_14
szSignal15=DEV_IN.CHANNEL_15
szSignal16=DEV_IN.CHANNEL_16
szSignal17=DEV_IN.CHANNEL_17
szSignal18=DEV_IN.CHANNEL_18
szSignal19=DEV_IN.CHANNEL_19
szSignal20=DEV_IN.CHANNEL_20
szSignal21=DEV_IN.CHANNEL_21
szSignal22=DEV_IN.CHANNEL_22
szSignal23=DEV_IN.CHANNEL_23
szSignal24=DEV_IN.CHANNEL_24
szSignal25=DEV_IN.CHANNEL_25
szSignal26=DEV_IN.CHANNEL_26
szSignal27=DEV_IN.CHANNEL_27
szSignal28=DEV_IN.CHANNEL_28
szSignal29=DEV_IN.CHANNEL_29
szSignal30=DEV_IN.CHANNEL_30
szSignal31=DEV_IN.CHANNEL_31
szSignal32=DEV_IN.CHANNEL_32
szSignal33=DEV_IN.CHANNEL_33
szSignal34=DEV_IN.CHANNEL_34
szSignal35=DEV_IN.CHANNEL_35
szSignal36=DEV_IN.CHANNEL_36
szSignal37=DEV_IN.CHANNEL_37
szSignal38=DEV_IN.CHANNEL_38
szSignal39=DEV_IN.CHANNEL_39
szSignal40=DEV_IN.CHANNEL_40
szSignal41=DEV_IN.CHANNEL_41
szSignal42=DEV_IN.CHANNEL_42
szSignal43=DEV_IN.CHANNEL_43
szSignal44=DEV_IN.CHANNEL_44
szSignal45=DEV_IN.CHANNEL_45
szSignal46=DEV_IN.CHANNEL_46
szSignal47=DEV_IN.CHANNEL_47
szSignal48=DEV_IN.CHANNEL_48
szSignal49=DEV_IN.CHANNEL_49
szSignal50=DEV_IN.CHANNEL_50
szSignal51=DEV_IN.CHANNEL_51
szSignal52=DEV_IN.CHANNEL_52
szSignal53=DEV_IN.CHANNEL_53
szSignal54=DEV_IN.CHANNEL_54
szSignal55=DEV_IN.CHANNEL_55
szSignal56=DEV_IN.CHANNEL_56
szSignal57=DEV_IN.CHANNEL_57
szSignal58=DEV_IN.CHANNEL_58
szSignal59=DEV_IN.CHANNEL_59
szSignal60=DEV_IN.CHANNEL_60
szSignal61=DEV_IN.CHANNEL_61
szSignal62=DEV_IN.CHANNEL_62
szSignal63=DEV_IN.CHANNEL_63
szSignal64=DEV_IN.CHANNEL_64

#StartTrigger
```

```
szStartTrigger=TRIGGER-1.StartTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StartTriggerType
usStartTriggerType=1

#StartTriggerValue
dStartTriggerValue=1

#AcqTrigger
szAcqTrigger=TRIGGER-1.RunTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#AcqTriggerType
usAcqTriggerType=2

#AcqTriggerValue
dAcqTriggerValue=1

#StopTrigger
szStopTrigger=TRIGGER-1.StopTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usStopTriggerType=1

#StopTriggerValue
dStopTriggerValue=1

#FinishTrigger
szFinishTrigger=TRIGGER-1.FinishTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usFinishTriggerType=1

#FinishTriggerValue
dFinishTriggerValue=1

#End of Acquisition Setup File : C:\Manual\Acquisition\A.Acq
```

B. Acquisition through an acquisition node with an external trigger (synchronous acquisition with a master DLL)

```
#Start of Acquisition Setup File : C:\Manual\Acquisition\B.Acq
#Name of the acquisition Object
Name=AcqNodeExt

#Message queue size
dwQueueSize=8000

#Memory size
dwMemorySize=200480

#Maximum block
dwBlockNumber=50000

#Acquisition Type
usAcquisitionType=1

#project name
szProjectName=Manual

#structure name
szStructureName=Specimen

#experiment name
szExperimentName=B

#acquisition name
szAcquisitionName=AcqNodeExt

#description
szDescription=Acq Node + External Trig

#sampling time
dwSamplingTime=2

#Average
dwAverage=100

#buffer size (number of acq)
dwBufferSize=10000

#signalnumber
dwSignalNumber=6

szSignal1=DEV_IN.CHANNEL_1
szSignal2=DEV_IN.CHANNEL_2
szSignal3=DEV_IN.CHANNEL_3
szSignal4=DEV_IN.CHANNEL_4
szSignal5=DEV_IN.CHANNEL_5
szSignal6=DEV_IN.CHANNEL_6
szSignal7=DEV_IN.CHANNEL_7
szSignal8=DEV_IN.CHANNEL_8
```

```
szSignal9=DEV_IN.CHANNEL_9
szSignal10=DEV_IN.CHANNEL_10
szSignal11=DEV_IN.CHANNEL_11
szSignal12=DEV_IN.CHANNEL_12
szSignal13=DEV_IN.CHANNEL_13
szSignal14=DEV_IN.CHANNEL_14
szSignal15=DEV_IN.CHANNEL_15
szSignal16=DEV_IN.CHANNEL_16
szSignal17=DEV_IN.CHANNEL_17
szSignal18=DEV_IN.CHANNEL_18
szSignal19=DEV_IN.CHANNEL_19
szSignal20=DEV_IN.CHANNEL_20
szSignal21=DEV_IN.CHANNEL_21
szSignal22=DEV_IN.CHANNEL_22
szSignal23=DEV_IN.CHANNEL_23
szSignal24=DEV_IN.CHANNEL_24
szSignal25=DEV_IN.CHANNEL_25
szSignal26=DEV_IN.CHANNEL_26
szSignal27=DEV_IN.CHANNEL_27
szSignal28=DEV_IN.CHANNEL_28
szSignal29=DEV_IN.CHANNEL_29
szSignal30=DEV_IN.CHANNEL_30
szSignal31=DEV_IN.CHANNEL_31
szSignal32=DEV_IN.CHANNEL_32
szSignal33=DEV_IN.CHANNEL_33
szSignal34=DEV_IN.CHANNEL_34
szSignal35=DEV_IN.CHANNEL_35
szSignal36=DEV_IN.CHANNEL_36
szSignal37=DEV_IN.CHANNEL_37
szSignal38=DEV_IN.CHANNEL_38
szSignal39=DEV_IN.CHANNEL_39
szSignal40=DEV_IN.CHANNEL_40
szSignal41=DEV_IN.CHANNEL_41
szSignal42=DEV_IN.CHANNEL_42
szSignal43=DEV_IN.CHANNEL_43
szSignal44=DEV_IN.CHANNEL_44
szSignal45=DEV_IN.CHANNEL_45
szSignal46=DEV_IN.CHANNEL_46
szSignal47=DEV_IN.CHANNEL_47
szSignal48=DEV_IN.CHANNEL_48
szSignal49=DEV_IN.CHANNEL_49
szSignal50=DEV_IN.CHANNEL_50
szSignal51=DEV_IN.CHANNEL_51
szSignal52=DEV_IN.CHANNEL_52
szSignal53=DEV_IN.CHANNEL_53
szSignal54=DEV_IN.CHANNEL_54
szSignal55=DEV_IN.CHANNEL_55
szSignal56=DEV_IN.CHANNEL_56
szSignal57=DEV_IN.CHANNEL_57
szSignal58=DEV_IN.CHANNEL_58
szSignal59=DEV_IN.CHANNEL_59
szSignal60=DEV_IN.CHANNEL_60
szSignal61=DEV_IN.CHANNEL_61
szSignal62=DEV_IN.CHANNEL_62
szSignal63=DEV_IN.CHANNEL_63
szSignal64=DEV_IN.CHANNEL_64
```

```
#StartTrigger
szStartTrigger=TRIGGER-1.StartTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StartTriggerType
usStartTriggerType=1

#StartTriggerValue
dStartTriggerValue=1

#AcqTrigger
szAcqTrigger=DEV_IN.CHANNEL_65

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#AcqTriggerType
usAcqTriggerType=1

#AcqTriggerValue
dAcqTriggerValue=1

#StopTrigger
szStopTrigger=TRIGGER-1.StopTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usStopTriggerType=1

#StopTriggerValue
dStopTriggerValue=1

#FinishTrigger
szFinishTrigger=TRIGGER-1.FinishTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usFinishTriggerType=1

#FinishTriggerValue
dFinishTriggerValue=1

#End of Acquisition Setup File : C:\Manual\Acquisition\B.Acq
```

C. Acquisition through a Master Controller with an internal predefined trigger

```
#Start of Acquisition Setup File : C:\Manual\Acquisition\C.Acq
#Name of the acquisition Object
Name=MasterInt

#Message queue size
dwQueueSize=8000

#Memory size
dwMemorySize=200480

#Maximum block
dwBlockNumber=50000

#Acquisition Type
usAcquisitionType=1

#project name
szProjectName=Manual

#structure name
szStructureName=Specimen

#experiment name
szExperimentName=C

#acquisition name
szAcquisitionName=MasterInt

#description
szDescription=Master + Internal Trigger

#sampling time
dwSamplingTime=100

#Average
dwAverage=50

#buffer size (number of acq)
dwBufferSize=300000

#signalnumber
dwSignalNumber=10
szSignal1=INTERNALALGOINPUT1.Tempo2
szSignal2=INTERNALALGOINPUT1.TempoAbs
szSignal3=INTERNALALGOINPUT1.Heide
szSignal4=INTERNALALGOINPUT1.Force1
szSignal5=INTERNALALGOOUTPUT1.Reference
szSignal6=INTERNALALGOINPUT2.Tempo2
szSignal7=INTERNALALGOINPUT2.TempoAbs
szSignal8=INTERNALALGOINPUT2.Heide
szSignal9=INTERNALALGOINPUT2.Force1
```

```
szSignal10=INTERNALALGOOUTPUT2.Reference

#StartTrigger
szStartTrigger=TRIGGER-1.StartTrigger
# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StartTriggerType
usStartTriggerType=1

#StartTriggerValue
dStartTriggerValue=1

#AcqTrigger
szAcqTrigger=TRIGGER-1.RunTrigger
# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#AcqTriggerType
usAcqTriggerType=2

#AcqTriggerValue
dAcqTriggerValue=1

#StopTrigger
szStopTrigger=TRIGGER-1.StopTrigger
# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usStopTriggerType=1

#StopTriggerValue
dStopTriggerValue=1

#FinishTrigger
szFinishTrigger=TRIGGER-1.FinishTrigger
# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usFinishTriggerType=1

#FinishTriggerValue
dFinishTriggerValue=1
#End of Acquisition Setup File : C:\Manual\Acquisition\C.Acq
```

D. Acquisition through a Master Controller with an internal trigger synchronous with the DLL

```
#Start of Acquisition Setup File : C:\Manual\Acquisition\D.Acq

#Name of the acquisition Object
Name=MasterDLLInt

#Message queue size
dwQueueSize=8000

#Memory size
dwMemorySize=200480

#Maximum block
dwBlockNumber=50000

#Acquisition Type
usAcquisitionType=1

#project name
szProjectName=Manual

#structure name
szStructureName=Specimen

#experiment name
szExperimentName=D

#acquisition name
szAcquisitionName=MasterDLLInt

#description
szDescription=Master+DLL+Internal Trig

#sampling time
dwSamplingTime=2

#Average
dwAverage=1

#buffer size (number of acq)
dwBufferSize=300000

#signalnumber
dwSignalNumber=45

szSignal1=ALGORAV.iRecAv
szSignal2=ALGORAV.InterAv
szSignal3=ALGORAV.TimeAv
szSignal4=ALGORAV.EneAbsAv
szSignal5=ALGORAV.EneErrAv
szSignal6=ALGORAV.DisAv01
szSignal7=ALGORAV.DisAv02
```

```
szSignal8=ALGORAV.VelAv01
szSignal9=ALGORAV.VelAv02
szSignal10=ALGORAV.AccAv01
szSignal11=ALGORAV.AccAv02
szSignal12=ALGORAV.ResAv01
szSignal13=ALGORAV.ResAv02
szSignal14=ALGORAV.ExFAv01
szSignal15=ALGORAV.ExFAv02
szSignal16=ALGORAV.GAccAv01
szSignal17=ALGORAV.GAccAv02
szSignal18=ALGORAV.LCellAv01
szSignal19=ALGORAV.LCellAv02
szSignal20=ALGORAV.HeidAv01
szSignal21=ALGORAV.HeidAv02
szSignal22=ALGORAV.TempAv01
szSignal23=ALGORAV.TempAv02
szSignal24=ALGORAV.TempAbsAv01
szSignal25=ALGORAV.TempAbsAv02
szSignal26=ALGORAV.SpeedAv01
szSignal27=ALGORAV.SpeedAv02
szSignal28=ALGORAV.LvdtAv01
szSignal29=ALGORAV.LvdtAv02
szSignal30=ALGORAV.DisConTargetAv01
szSignal31=ALGORAV.DisConTargetAv02
szSignal32=ALGORAV.Press1Av01
szSignal33=ALGORAV.Press1Av02
szSignal34=ALGORAV.Press2Av01
szSignal35=ALGORAV.Press2Av02
szSignal36=ALGORAV.PDForAv01
szSignal37=ALGORAV.PDForAv02
szSignal38=ALGORAV.ServoAv01
szSignal39=ALGORAV.ServoAv02
szSignal40=ALGORAV.SpoolAv01
szSignal41=ALGORAV.SpoolAv02
szSignal42=ALGORAV.ErrAv01
szSignal43=ALGORAV.ErrAv02
szSignal44=ALGORAV.ErrMax01
szSignal45=ALGORAV.ErrMax02

#StartTrigger
szStartTrigger=TRIGGER-1.StartTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StartTriggerType
usStartTriggerType=1

#StartTriggerValue
dStartTriggerValue=1

#AcqTrigger
szAcqTrigger=DEV_OUT.CHANNEL_17

# RISING_EDGE           = 1
```

```
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#AcqTriggerType
usAcqTriggerType=1

#AcqTriggerValue
dAcqTriggerValue=1

#StopTrigger
szStopTrigger=TRIGGER-1.StopTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usStopTriggerType=1

#StopTriggerValue
dStopTriggerValue=1

#FinishTrigger
szFinishTrigger=TRIGGER-1.FinishTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usFinishTriggerType=1

#FinishTriggerValue
dFinishTriggerValue=1

#End of Acquisition Setup File : C:\Manual\Acquisition\D.Acq
```

E. Generator

```
#Start of Generator Setup File : C:\Manual\Generator\Gen1.Gen

#Name of the generator Object
Name=Gen1

#FROM_FILE      1 - read file signal
#SQUARE         2 - Generate sqware wave
#SINUS          3 - Generate sinus wave
#TRIANGLE       4 - Generate triangle wave
#DC             5 - Generate DC wave
#RANDOM         6 - Generate random wave
#MANUAL         7 - Generate Manual Ramp

#GeneratorType
usGeneratorType=1

#Filename
szFileName=swept40.dat

#signalnumber
dwSignalNumber=2

szSignal1=INTERNALALGOOUTPUT1.Reference
szSignal2=INTERNALALGOOUTPUT2.Reference

#Period in millisecond
dwPeriod=2

#Span 1->100% or more
nSpan=100

#Offset
dOffset=0

#Counter 0=repeat infinite
dwCounter=0

#Amplitude
dAmplitude=1

#dutyCycle in %
dwDutyCycle=50

#SlopeIncrement
dSlopeIncrement=0.1

#StartTrigger
szStartTrigger=TRIGGER-1.StartTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4
```

```
#StartTriggerType
usStartTriggerType=1

#StartTriggerValue
dStartTriggerValue=1

#AcqTrigger
szGenTrigger=TRIGGER-1.RunTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#AcqTriggerType
usGenTriggerType=2

#AcqTriggerValue
dGenTriggerValue=1

#StopTrigger
szStopTrigger=TRIGGER-1.StopTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usStopTriggerType=1

#StopTriggerValue
dStopTriggerValue=1

#FinishTrigger
szFinishTrigger=TRIGGER-1.FinishTrigger

# RISING_EDGE           = 1
# RISING_LEVEL          = 2
# FALLING_EDGE          = 3
# FALLING_LEVEL         = 4

#StopTriggerType
usFinishTriggerType=1

#FinishTriggerValue
dFinishTriggerValue=1

#End of Generator Setup File : C:\Manual\Generator\Gen1.Gen
```

Table of Contents

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Abstract

During a test, the user may want some data to be displayed, analyzed or/and stored in the computer. This can be made through an acquisition. The acquisition manual explains how to do an acquisition starting from the most simple case: using an acquisition node with an internal trigger. Each chapter adds new information to the previous one: using an external trigger, a master controller, etc. In this annex the user can find different examples of each case.

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